

REMARKS

With this Amendment, claims 1, 4, 14-16 are amended; claims 5-13 and 17-19 are cancelled, such that claims 1-4, 14-16, and 20 remain pending. Review and reconsideration of the pending claims is respectfully requested.

eIDS

Applicant would like to call the Examiner's attention to the copies of the four electronic information disclosure statements ("eIDS") attached to this Amendment. Applicant filed the attached eIDS on June 19, 2003, July 28, 2003, and Nov. 14, 2003 (two) respectively. Copies of the acknowledgement receipts from the USPTO for these eIDS are also attached for the Examiner's reference. We did not receive initialed copies of these eIDS or any indication that the Examiner had seen the references cited on them in the Office Action issued by the Examiner. Applicant is concerned that these eIDS did not get matched up with the correct file and thus submit copies of the eIDS previously submitted with this Amendment in order to ensure full consideration by the Examiner.

Claim Rejections – 35 U.S.C. §102

The Examiner rejects claims 1 and 3 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,689,425 to Sainio et al. Applicants disagree.

Claim 1 has been amended to more particularly define a binary correlator, i.e., as operating on a plurality of pixel data values that are each a single bit. As disclosed in the specification of the present application, the pixel data values are either a logic one or logic zero. Further, claim 1 has been amended to define a binary correlator that is implemented in hardware.

With respect to independent claim 1, Sainio et al. does not disclose or suggest a binary correlator that operates on a plurality of pixel data values that are each a single bit. Further, Sainio does not disclose or suggest a binary correlator that is implemented in hardware, as defined by claim 1.

In particular, the correlator in Sainio operates on a plurality of pixel data values that are 8 bits in size, as the sensor and the analog to digital conversion process provide that level of precision. See column 10, lines 2-13 of Sainio. It would not be obvious to merely replace the 8

bit pixel data values with single bit values, because the selection of an appropriate binary threshold is not easily determined.

Further, the correlator described in Sainio is implemented in software, and operates to compare the relative location of a first color mark to that of a second color mark. In other words, the computer in Sainio is programmed to perform the correlations described therein. See column 13, lines 3-12. The correlations described in Sainio are performed in the frequency domain, and the complexity of the Fourier transforms and inverse Fourier transforms dictate that the correlator be implemented in software.

Therefore, claim 1 defines over the reference cited by the Examiner, and is allowable. Claims 2-4 depend from claim 1, and are allowable for at least the reasons discussed above with respect to claim 1.

Claim Rejections – 35 U.S.C. §103

The Examiner rejects claims 2, 14, 15, and 18-20 under 35 U.S.C. sec. 103(a) as being unpatentable over Sainio et al. in view of U.S. Patent No. 5,917,556 to Katayama. Applicants disagree.

With respect to independent claim 14, claim 14 has been amended to define a correlator that is implemented substantially in hardware. As discussed above with respect to claim 1, Sainio does not disclose or suggest a correlator that is implemented substantially in hardware. Further, Katayama does not cure the deficiencies of Sainio, as Katayama does not disclose a correlator at all. Therefore, claim 14 is allowable. Claims 15-16 depend from claim 14, and are allowable for at least the reasons discussed above.

With respect to independent claim 20, claim 20 requires, inter alia, an image processing subsystem implemented on at least on FPGA, and wherein when it is desirable to change the image processing subsystem, said at least one FPGA is suitably re-programmed. Neither the Sainio, Katayama, nor Zhang references disclose or teach such a re-programmable FPGA, nor does the Examiner point out with particularity how any one of these references teaches this limitation. Accordingly, claim 20 is allowable.

The Examiner rejects claims 4, 5, 7, 8, 9 and 11 under 35 U.S.C. sec. 103(a) as being unpatentable over Sainio et al. in view of U.S. Patent No. 6,295,115 to Zhang et al. Applicants disagree.

With respect to claim 4, claim 4 is dependent upon claim 1, and is allowable for the reasons stated above with respect to claim 1.

CONCLUSION

In view of the foregoing, entry of the above amendments and allowance of claims 1-4, 14-16, and 20 are respectfully requested. The undersigned is available for telephone consultation at any time.

Respectfully submitted,



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